

Prostate cancer diagnosis

What is the prostate?

The prostate is a small but important gland (organ) in the male reproductive system. The main role of the prostate is to make fluid that protects and feeds sperm. The prostate makes about one third of the fluid that is ejaculated (released) from the penis at orgasm (sexual climax).

Where is the prostate?

In young men the prostate is about the size of a walnut but it gets bigger with age. The prostate sits underneath the bladder and surrounds the top part of the urethra. Urine passes through the urethra on its way from the bladder to the penis.

What is prostate disease?

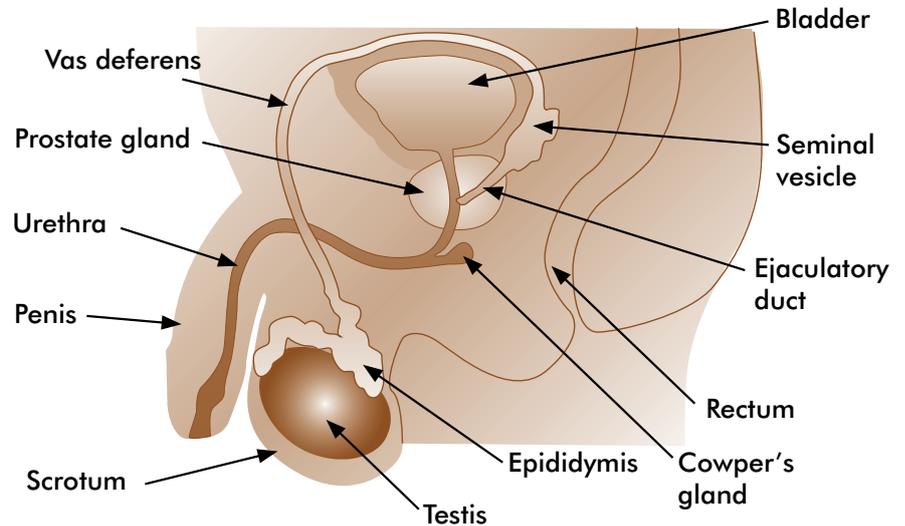
Prostate disease is any medical problem that affects the prostate gland. Common prostate problems include benign prostatic hyperplasia (BPH; enlarged prostate), prostatitis (infection/inflammation) and prostate cancer.

What is prostate cancer?

Prostate cancer is a problem where cells within the prostate grow and divide abnormally so that a tumour forms. Prostate cancer is diagnosed mainly in men over the age of 50 years. Prostate cancer cells often grow very slowly and may not cause any problems or symptoms, or become life-threatening. However, less commonly, the cancer cells grow more quickly and may spread to other parts of the body. It is not known why prostate cancers grow at different rates and why some tumours spread to other parts of the body.

How common is prostate cancer?

Prostate cancer is the most common lethal cancer diagnosed in men in Australia, with about 16,500 Australian men diagnosed each year. It is more common in older men, particularly over the age of 50 years.



What causes prostate cancer?

The causes of prostate cancer are not known. However there are certain risk factors that have been linked with developing prostate cancer, including:

- family history: a father, uncle or brother who has had prostate cancer (especially if at a young age) or, in some instances, a female relative with breast or ovarian cancer
- older age
- obesity gives an increased risk of high grade cancer
- race: men with African heritage have the highest rates of death from prostate cancer, and men of Caucasian background are more likely to get prostate cancer than Asian men (particularly Asian men eating Asian rather than western diets).

What are the symptoms of prostate cancer?

Early prostate cancer rarely causes any symptoms. Problems with urination are sometimes present with prostate cancer; however, urinary symptoms are most likely to be caused by benign (non-cancerous) prostate conditions such as BPH (prostate enlargement) or prostatitis.

How is prostate cancer diagnosed?

Several tests may be done to see if prostate cancer is likely and help decide whether to have a prostate biopsy to confirm the diagnosis. Some tests may be done by your GP or after referral to a Urologist (a doctor specialising in diseases of the urinary tract and male genital organs).

A PSA test measures the level of prostate specific antigen (PSA) in the blood and if elevated may lead to further investigations.

A prostate MRI scan can be used to see if prostate cancer is visible, and the location of a possible cancer. This can guide the doctor to the area of suspicion to take a biopsy, if needed.

A digital rectal examination (DRE) is where a doctor places a gloved finger into the rectum (back passage) to feel for size, shape and outline of the prostate. A normal DRE does not mean cancer is not present, however an abnormal DRE may lead to further investigation with a biopsy.

If the level of PSA or the MRI or DRE is abnormal, there is a higher chance of prostate cancer being found when a biopsy is done. Importantly, most men with a slightly raised PSA level do not have cancer found at biopsy.

How do I make a decision about having a PSA test for prostate cancer?

Having a PSA test may lead to further investigations after the blood test results are back, especially if the PSA level is raised. There are several things to think about before having a PSA test for prostate cancer: your age, your general health, your level of concern about having prostate cancer, any symptoms you have, your risk of having prostate cancer (for example, if there is a family history of prostate cancer or related cancers), and the risk and benefits of finding the prostate cancer early.

The benefit of a PSA test is that it may find prostate cancer when it is small and can be cured. The risks of PSA testing include having unnecessary further investigations (if the PSA elevation is not due to cancer) and treatment if a cancer is found that may not have caused problems if left untreated, given the possible negative side-effects of cancer treatments.

Early prostate cancer rarely causes any symptoms

Why is biopsy necessary to diagnose prostate cancer?

The PSA test is not a test specifically for cancer. A raised PSA level in the blood just means there is something happening in the prostate which, in most instances, is not due to cancer.

The only way to diagnose prostate cancer is with a tissue sample taken from the prostate. The biopsy is usually done by a Urologist. The tissue samples are then sent to a pathologist to be looked at under a microscope

to see if cancer is present, and if so, whether it is aggressive or not.

A transrectal or transperineal ultrasound-guided biopsy of the prostate gland uses an ultrasound probe placed in the rectum (back passage) to outline the prostate. A prior MRI showing a suspicious area can guide the doctor in where to place the biopsy needles for collecting the tissue samples.

Transrectal or transperineal biopsies can be unpleasant and at least half of men have minor symptoms for a day or two afterwards. With a transrectal biopsy, there is also a small risk of serious infection (septicaemia) even when 'covering' antibiotics are used. The risk of infection with transperineal biopsy is close to zero; however, this method of biopsy usually needs a general anaesthetic.

What is a Gleason score?

If cancer cells are present in the biopsy sample(s), the tumour is graded by looking through a microscope at the cells to see if it looks like an aggressive or a low risk cancer. This is important for deciding how to manage or treat the cancer.

The traditional grading system used is the Gleason score ranging from 6 to 10. Aggressive (fast-growing cancers), which are more likely to be harmful are called 'high-risk cancers', usually with a Gleason score of 8 to 10. Low risk (slow-growing cancers) are usually Gleason score 6.

This system is sometimes confusing to patients and therefore a new system, called the Grade Group system, has been devised to simplify prostate cancer grading. This system grades prostate cancer on a scale of 1 to 5, with 4 and 5 being the most aggressive (and equivalent to Gleason 8–10).

What are the stages of prostate cancer?

Prostate cancer is either 'localised' or 'advanced'. Localised prostate cancer is when the cancer is located only within the prostate and has not spread outside of the gland. Advanced (or metastatic) prostate cancer is when the cancer has spread to other areas in the body (such as lymph nodes or bone). Sometimes the cancer can spread from the prostate to nearby tissues and organs (such as the bladder or rectum) and this is called 'locally advanced' prostate cancer. The stage of prostate cancer is determined by clinical examination, imaging with a bone scan, CT scan, MRI, or a PSMA PET scan.

How is the type of prostate cancer treatment decided?

Once a diagnosis of prostate cancer has been made a man and his Urologist discuss what steps to take next for management and treatment. The decision will depend on a number of factors including:

- Gleason score or Grade Group - high grade (Gleason 8–10; Grade Group 4–5), intermediate (Gleason 7, Grade Group 2–3), or low grade (Gleason 6, Grade Group 1)
- stage of the cancer - localised in the prostate gland or spread to other parts of the body
- level of PSA in the blood and the rate of change of PSA over time (velocity)
- age and general health
- treatment options
- side-effects of treatment
- personal preference.

For further information about prostate cancer please see Andrology Australia's fact sheets: 'Prostate cancer treatment', 'PSA testing' and 'Androgen deprivation therapy'.

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